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ABSTRACT

Effective use of media and technology is a challenge and an opportunity for educators. The traditional educational paradigm presents a situation where educators provide instruction based on their knowledge and experience. The technology-based paradigm provides access to modern storage technologies at a student workstation, so that students can now access and manipulate information at a faster rate. The choice of teaching methods and media depends on the learning situation, the learner, subject, the educator, and the institution. Long term cost implications should be calculated to include the cost of production, hardware and software, and total hours per day the system can be utilized. The ASSURE model (B. B. Seels and R. C. Richey) has become a widely accepted guide to help educators plan for and implement the use of media. The steps in this model are: analyze learners; state objectives; select media and materials; utilize media and materials; require learner participation; and evaluate and revise. Educators and administrators need to be properly prepared to promote and manage technology that is useful to education. (AEF)

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Appropriate Media Versus Multimedia

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The twentieth century is known for its burgeoning development of technology. This development has naturally been mirrored in education. Technology and the mass media have a great impact on all sectors of society. Media and technology have been with us for years and are here to stay. However, in education, educational technology is perceived as a 'gadget' for window dressing, and labelled as a luxury which we can ill-afford and can manage without. At most institutions technology is also relegated to the bottom of the annual budget. Can educators think they can escape technology? To my mind, it is a matter of adapt or perish.

Several educators are of the opinion that with the absence of high-tech facilities and expensive resources little effective teaching can take place. There are still others who believe that an exposure to a variety of media leads to better learning. The utilization of media should not be over-emphasised or dominated by flashy commercial products. Media should facilitate the teaching-learning process, not hinder it.

Media and Technology

Media and technology have assumed a high-profile in the realms of business, education and home environments. Those of us who work with educational technology have a penchant for innovation, and are expected to implement this new presentation medium in our work environment. When it comes to media, the good thing is that one no longer needs to motivate people to use it. The challenge though is to motivate people to use it effectively and efficiently. Media will not only change the way students learn, but will also change the way educators think about teaching and learning.

It is true that new technologies create new uses. Media and technology brim with creative potential and at the same time with the potential of misuse and abuse. The visible presence of technology in an institution does not necessarily benefit the majority of students and enhance instruction. The mere exposure of media and technology to learners is not enough. There is no guarantee that learning will take place.

Media ought not to be employed as distracters, rewards, mere adjuncts to instruction, for their power and potential in the learning process are invaluable. Their use should be a major factor in the delivery of quality instruction. Effective use of media and technology is a challenge and an opportunity for educators. There is the fundamental law that applies to the application of technology to any operational process : technology does not reduce costs or improve results, people do.

A Shift in Paradigm

An educator is no longer the 'bastion of knowledge' as the role of the instructor has changed, from one of the dispenser of information to that of a facilitator of learning and subsequently assumes the role of a manager in the classroom. Further, there is a clear shift in the educator's role away from the traditional one-way communication' model to a multi-dimensional communication situation.

The traditional educational paradigm presents a situation where educators provide instruction based on their own knowledge and experience. The educator, in this paradigm, is the primary source of information, and controls the order of presentation. Knowledge and information is transmitted and transferred in a linear fashion from the sender to the learner. (Figure 1)

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KNOWLEDGE AND INFORMATION EDUCATOR CLASS OF STUDENTS

Figure 1 : Traditional Educational Paradigm

The technology-based paradigm provides access to modern storage technologies at a student workstation. Students can now access and manipulate information at a faster rate, removing the limitation imposed on them by the old paradigm. This multidimensional communication model allows the student to interact with the subject material, with other students, with the environment or with multimedia and technology. Technology facilitates information delivery by giving learners a variety of options based on an ongoing assessment of each student's interest, motivation and cognitive ability. By providing direct access to the knowledge-base, the new paradigm challenges students to manage and manipulate vast amounts of information while encouraging them to reflect on their own learning. It enables students to change roles from a passive recipient of information to an active knowledge worker.

Learners receive information and instruction in many modes and from many sources. Due to the tradition of printed materials in education, we have become accustomed to reading in a sequential and linear manner. Information is encountered in a lock-step sequence predetermined. Our thoughts are confined by the limitations of the print media (word). Cheap paper and printing democratised the knowledge base of society. Today, the limitation can be a deadly one for learning because the huge volume of information will not be effectively accessed by conventional means. The printed word will be for many learning situations, simply too restrictive, bulky and slow. Media is built around the premise that anything words in print can do, words with sounds and pictures can do better.

In addition, to the more common print media (books), audio media (audio cassette), the displayed media (charts) or projected media (slides); there are the conventional electronic communication media (television, radio) and computer media (internet, email, CD-ROM), CuSeeMe. Most of the information are stored in electronic format. This range of media poses a problem and a challenge to the wide media skills the educator (and students) has to acquire and master, such as technical knowledge, equipment knowledge, computer literacy and to develop a personal disposition towards the wide range of media available.

Setting of Parameters

Media Selection

The choice of teaching methods and media depends on the learning situation, the learner, subject, the educator and the institution. Media and methods should get attention for their intrinsic characteristics. The teaching of content should take place through the most appropriate medium — be it audio, audiovisual, face to face, tactile media, electronic media, self-study packages etc. and the choice of the medium should be part of the curriculum development planning phase, not added on.

Media selection is a key stage in the instructional processes employed by educators. In an era in which innovations in electronic and other media present a bewildering array of options to the educational practitioner, media selection and the factors that influence selections need to be fully understood if appropriate choices are to be made.

Educational Technology has seen a gradual but significant shift from a behavioral paradigm to a cognitive paradigm and more recently, constructivist perspectives of instructional design. These paradigms have explicit and implicit views of knowledge, the learner and the media. This is clearly demonstrated in the construction of different models of instructional design and more specifically media selection. Media selection models and approaches share the common view of media selection as an important stage in the design of an instructional event. Romiszowski (Figure 2) employs comprehensive flowcharts that take the user through a series of questions designed to aid selection by the rejection of generic groups and variants of media until the final choice is left to a short list of appropriate media.

SUBJECT MATTER
TYPE OF LEARNING TASK
TARGET POPULATION
TEACHER'S ATTITUDES, SKILLS, ETC
MEDIA SELECTION
PHYSICAL CONDITIONS
SPACE
LIGHTING,
CHARACTERISTICS OF STUDENTS
LEARNING STYLES
SKILLS
PRACTICAL CONSTRAINTS
MONEY
TIME
MATERIALS
METHODS SELECTION

Figure 2 : Factors Influencing Media Selection (Romiszowski, 1988, p. 5V)

The Educator

Good teaching is provided by the educator who is conversant with their subject matter, informed about their students' characteristics, able to impart the subject knowledge to their class in a meaningful, interesting and motivating way, guiding them towards greater understanding of their subject and in general to be better prepared to function as a citizen in the environment. How can an educator become a good teacher ? No doubt by opening up the communication channels, using all available and the most effective pathways to reach students. Some teachers are excellent and are natural exploiters of the verbal communication channel, but most of us are not, and unfortunately, perform indifferently well. This is where the use of media and technology assists us by making our teaching task easier and the learners' experience more rewarding. When dealing with high-tech media the educator's personal disposition towards the media is important. This may involve the ability to change, explore new ways without prejudice, the enthusiasm, to move from one teaching model to another in one's subject, the insight to display innovative thought while maintaining a critical, rational approach to the required learning outcomes, the skill to adopt and develop a personal style that is compatible with certain media and to strive towards optimal learning environment.

No one technology can truly rival an expert educator to giving and receiving information. Edward Murrow once said, "technology itself can teach, but without the human element, technology is like a box of wires..." Educators today have a marked fear of using new media and strategies. The other lame excuse of why bother to set the equipment and borrow the media -if one can manage without them. Having been educated with the textbook, many tend to stay with the familiar, 'tried and tested' approach, following the path of least resistance by adopting the same method as they were taught. Many educators have yet to be convinced of the place of media and technology in education. New skills will be required in consensus building and priority setting in which a proactive style replaces the typical reactive posture. Like any artist, an educator has to acquire expertise through formal training and education, as well as master the skills through practice. Educators need to be knowledgeable and uncompromising in their strive to provide the best for the situation the students find themselves in. If educators have a phobia of a certain medium of instruction, they are unlikely to use it well. The question of attitudes and feelings of staff are among the most important factors affecting the success of any lesson. The educator has to have an open mind towards the use of media. Blatant disregard for important characteristics of the learning situation will inevitably lead to poor course design.

There is the need to fully accept the possibilities and limitations of new technology. Machine gadget is the medium through which a subject is taught and that it cannot accomplish this task on its

own. The mere exposure of media to learners is not enough. Starting with media and technology can be time consuming and more often than not, very confusing. But the end result — improved education of the young makes the effort worthwhile and rewarding.

The Cost Factor

Using media is more expensive than the talk and chalk method. This expense has to be weighed against the immediate effectiveness and rapid understanding of the 'content'. The long term cost implications should be calculated to include the cost of production, hardware and software, total hours per day the system can be utilized. The emphasis today is not on any one approach or feedback — but on an integration of a variety of methods and media into an appropriate and effective learning environment catering for the specific needs and diversity of the learners.

Institutions frequently acquire media in a non-systematic fashion. Generally the exact use is not determined prior to the purchase of the hardware. Often media, having been purchased by well meaning PTA's are donated to the institutions. The purpose of media is to simplify instruction. They should not make the process of learning more complex. Media are used, sometimes, without much thought. They are selected on the basis of their availability. Media and technology unless well managed, will reduce rather than increase efficiency.

Ill-suited hardware and/or software are often forced upon and accepted by blissfully ignorant educators. Educators are fond of asking the following questions: Should we buy this or that hardware ? or what software can we do without ? The appropriate questions educators should be asking are : Can we disregard our duty to educate ? Can we in the process afford to ignore any appropriate media that may guide learners to acquire new information and skills ? There is a profound difference between using technology effectively and adding technology to an existing structure.

Media Utilization

One presenter recently remarked, media utilization means more than one trip to the car. The trend of media research so far appears to lead to the conclusion that learning is influenced by the quality of the presentation only to the extent that the quality influences the clarity of the message. For many years the utilization domain was centred around the activities of the educators. Teaching and learning models and theories today focus on the user's perspective. No single media nor technology possesses all the attributes that are ideally needed in an instructional task. The ASSURE model presented in the text by Seels and Richey (1995: 43) has become a widely accepted guide to help educators plan for and implement the use of media in the teaching situation. The steps in this model are

- Analysis of learners
- State objectives
- Select media and materials
- Utilize media and materials
- Require learner participation
- Evaluate and revise

Daniel Kinnaman (Gray: 1994-45) stated, "in the information age, students need to do more than just find the information — they need to know how to separate the fluff from the substance". To enhance learner's achievements, media and technology must be used effectively in the instructional process than ever before. New technologies present the prospects of creating increasingly realistic stimuli, providing for quick access of large quantities of information, rapidly linking information and media, removing the barriers of distance between instructor and learners and among learners themselves. The rich have untold power at their finger tips and through high performance and the manipulation of the communication and computing resources and work with others around the global village. Those who fail to understand and learn the use of communication and computing systems will become underclass totally disadvantaged in an increasingly competitive society.

Conclusion

The visions of learning and teaching in many reform proposals stress : the active involvement of the learner in the learning process; attention to intellectual and emotional skills at many levels; preparation of the young to assume responsibilities in a rapidly changing world and flexibility among

students who will enter a world of work that will demand life-long learning. (Kearsley & Lynch, 1994: p159) . Educators and administrators need to be properly prepared to promote and manage technology. In many cases technology is inappropriately or ineffectually used and by the almost complete absence of specific training.

One area that is especially important for educators is the ability to critically evaluate existing and new technology. We need educators who can think about the possible side-effects and human impact of technology and weigh these consequences in their decision-making. We do not want a generation of technocrats any more than we want 'technophobes'.

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